



# THE TEST RESULTS

Guardol ECT<sup>®</sup> synthetic blend offers excellent performance among leading competitors. In 12 tests, Guardol ECT demonstrated better corrosion, lead and wear protection than three leading competitors.

There is a better CJ-4 oil.



# What did we test? 12 critical factors.

## 1 - Viscosity Index

Temperature fluctuations can cause widely varying levels of engine protection due to change in oil viscosity (resistance to flow). **Viscosity Index** measures the oil's ability to maintain the same viscosity as temperatures change. The higher the Viscosity Index, the more stable the oil's viscosity in both high and low temperatures.

## 2 - Used Oil Pumpability

Aging oil contains higher levels of soot, sludge and oxidation by-products, all affecting the flow of oil to critical engine parts. **Used Oil Pumpability** demonstrates the oil's ability to maintain proper flow rate, especially after prolonged use.

## 3 - Oxidation Protection

Oxidation deposits cause sticking, malfunction of close-clearing moving parts and poor heat transfer. **Oxidation Protection** indicates the ability of oil to resist oxidative breakdown.

## 4 - Rust Protection

Acids and water enter oil as a result of the combustion process, causing internal engine parts to rust. **Rust Protection** measures the ability of oil to prevent rust when exposed to acid and water.

## 5 - Lead (Pb) Protection

When critical bearing parts made of lead and Babbitt metals become corroded, the result is shortened engine life. **Lead Protection** demonstrates the ability of oil to prevent lead corrosion.

## 6 - Cold Flow

Low temperature causes oil flow to slow, resulting in poor engine lubrication. **Cold Flow** is a measure of a new oil's ability to flow freely at low temperatures under gravity and low torque.

## 7 - Cranking Viscosity

Among the factors prone to inhibit oil flow, low temperature is a leading cause of engine harm. **Cold Cranking Viscosity** demonstrates the oil's ability to flow to all parts of the engine at low temperatures under cranking conditions.

## 8 - Higher Shear Viscosity

Shearing causes premature wear and shortened engine life due to loss of viscosity. **Higher Shear Viscosity** indicates how well oil maintains steady viscosity by resisting shearing loss at high temperatures and under pressure as oil passes through an engine's many narrow clearances.

## 9 - Soot Handling

Engine combustion creates soot that increases oil viscosity over time and threatens pumpability. **Soot Handling** measures an oil's capacity to hold or disperse soot while minimizing viscosity increases.

## 10 - Deposits Protection

Sludge, carbon and other deposits block clearances between components, clog oil passages, reduce oil flow, plug filters and lead to poor heat transfer. **Deposits Protection** indicates the oil's capacity to keep critical parts clean and working properly.

## 11 - Wear Protection

Engine wear occurs when insufficient lubrication leads to metal-on-metal contact in an engine and premature engine teardown. **Wear Protection** measures the ability of the oil to maintain proper film strength and protect engine components.

## 12 - Base Oil Quality

Highly refined base oils have little or no sulfur or aromatics and are suitable for producing high-quality finished lubricants. **Base Oil Quality** measures the initial quality of the base oil.

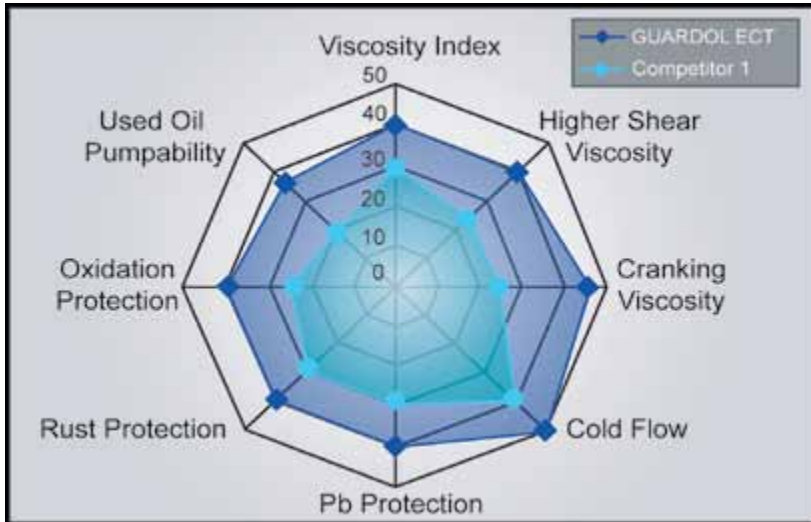
## Liquid Titanium® Benefit

Guardol ECT® synthetic blend engine oil showed impressive results when tested against competitors in a series of tests. The addition of **Liquid Titanium** to the formulation further enhanced overall product performance, providing additional protection to critical engine parts.

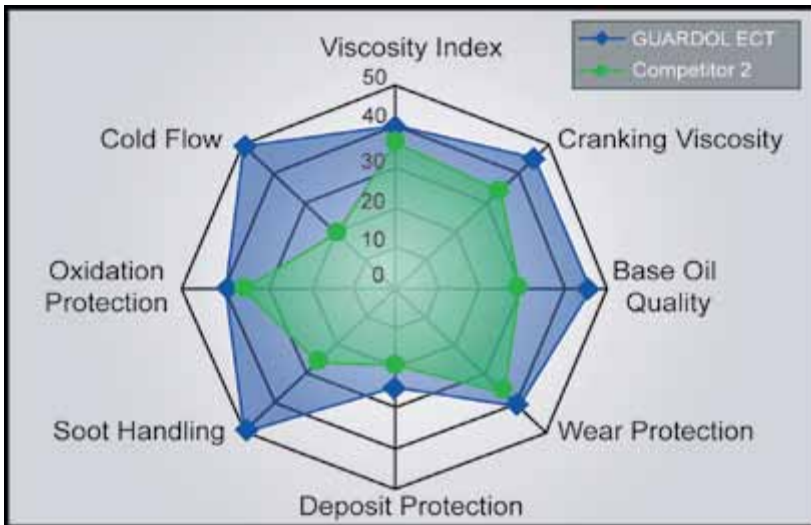


# How did we do? See for yourself.

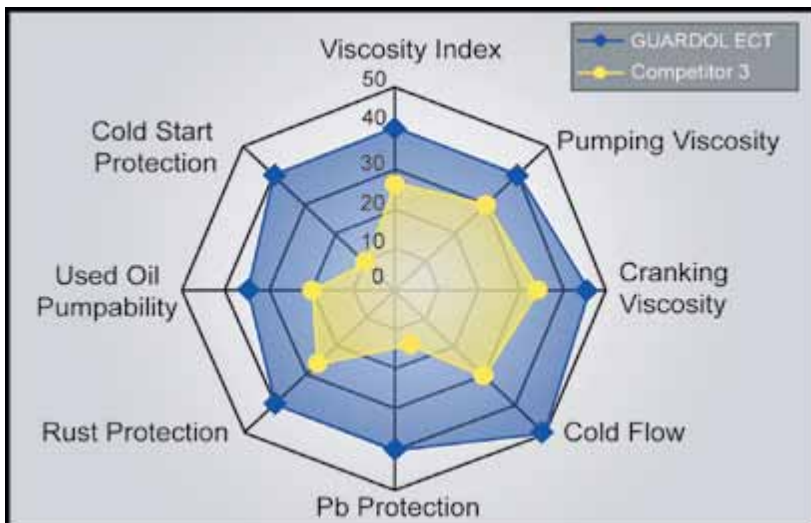
HOW TO READ THE CHARTS: Each chart below compares Guardol ECT® to a competitor in eight performance categories. Evaluate Guardol ECT in any category measure by observing its score relative to the competitor. Higher performance scores are closer to the outer edge; lower performance scores are nearer to the center. Color codes are used to help distinguish the products being compared.



SUMMARY: Against Competitor 1, Guardol ECT demonstrated better results across all test criteria, particularly Cold Cranking Viscosity, Oxidation Protection and Used Oil Pumpability.



SUMMARY: The performance benefits of Guardol ECT over Competitor 2 include greater Soot Handling for minimal viscosity-increase and better Cold Flow for easier start-ups and safer low-temperature operation.



SUMMARY: In each area tested against Competitor 3, Guardol ECT showed consistently better results. The Cold Start Protection properties of Guardol ECT tested notably higher than Competitor 3.

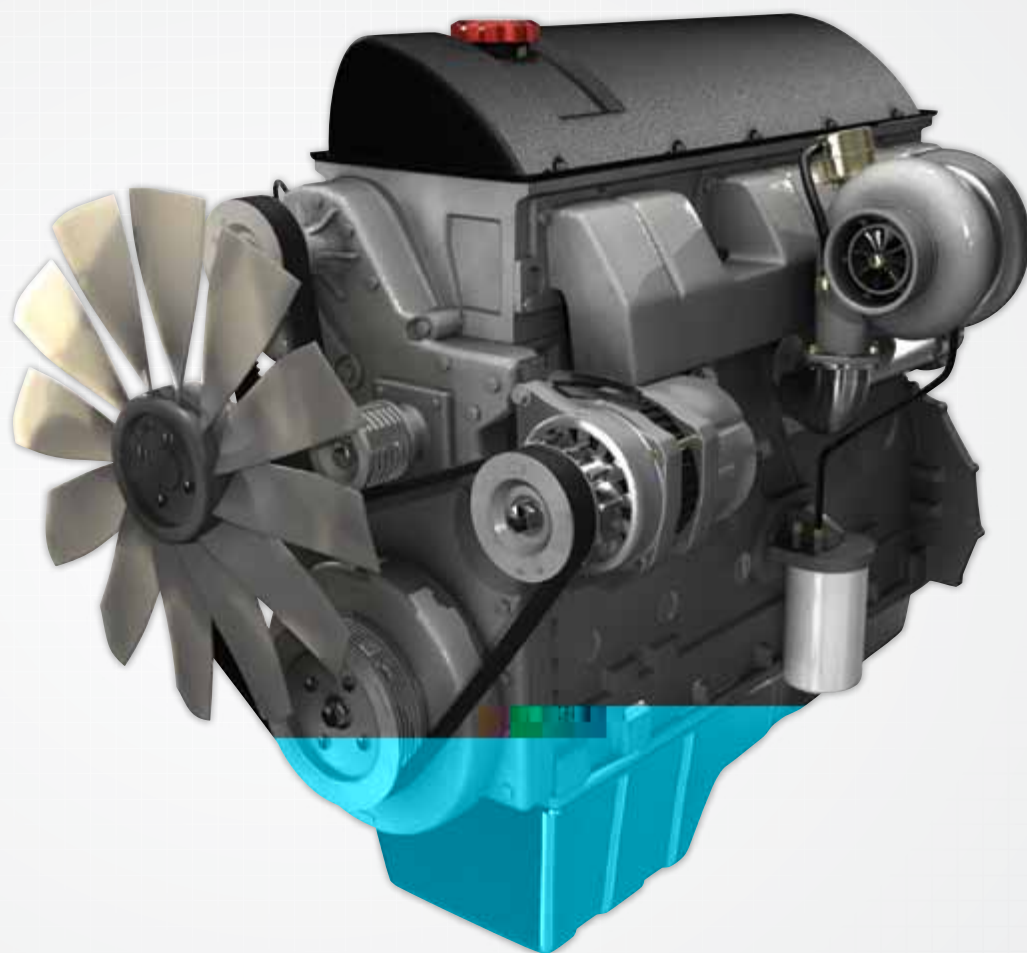
# Guardol ECT<sup>®</sup> with Liquid Titanium<sup>®</sup> protects engines where they need it most.

See for yourself in our interactive 3-D engine demo.

[conocophillipslubricants.com/TITANIUM](http://conocophillipslubricants.com/TITANIUM)

## Hotspots:

- 1 Rocker Arm
- 2 Turbocharger
- 3 Cylinder Liners
- 4 Main and Rod Bearings
- 5 Oil Pan
- 6 Camshaft
- 7 Piston Rings
- 8 Piston Ring Grooves



For more information, call the ConocoPhillips Lubricants Technical Hotline at **1.877.445.9198** or visit [conocophillipslubricants.com](http://conocophillipslubricants.com)

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